



## FOREST SERVICE MANUAL NATIONAL HEADQUARTERS (WO) WASHINGTON, DC

### FSM 2500 - WATERSHED AND AIR MANAGEMENT

#### CHAPTER 2520 - WATERSHED PROTECTION AND MANAGEMENT

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**Posting Instructions:** Amendments are numbered consecutively by title and calendar year. Post by document; remove the entire document and replace it with this amendment. Retain this transmittal as the first page(s) of this document. The last amendment to this title was 2500-2000-2 to 2520.

<b>New Document</b>	2520	44 Pages
<b>Superseded Document(s) by Issuance Number and Effective Date</b>	2520 Contents (Amendment 2500-2000-1, 05/25/2000) 2520 (Amendment 2500-2000-2, 05/25/2000)	4 Pages  30 Pages

#### **Digest:**

2520 - Throughout chapter, updates the following position titles from "Director of Watershed and Air Management Staff" to "Director of Watershed, Fisheries, Wildlife, Air, and Rare Plants."

Updates the term from "Burned Area Emergency Rehabilitation" to "Burned Area Emergency Response" to conform to the Department of the Interior (DOI) terminology.

Makes minor formatting and editorial changes throughout this chapter. Substantive changes include:

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**Digest--Continued:**

2523 - Revises caption from "Burned-Area Emergency Rehabilitation" to "Emergency Stabilization - Burned-Area Emergency Response (BAER)." Revises direction to reflect the January 2003 Wildland Fire Leadership Council (WFLC) decisions on the BAER policy and to establish consistent direction between the DOI and the Forest Service. The DOI is preparing a companion revision to its directives in the Interior Departmental Manual (DM) Part 620. An interagency team of Forest Service, DOI, the Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA), Fish and Wildlife Service (FWS), National Park Service (NPS), and representatives developed the DM and FSM revisions. There are no outstanding issues to resolve.

2523.01 - Describes the annual Appropriation Act for Interior and Related Agencies as the authority for the BAER program.

2523.02 - Updates the objectives for BAER and moves the direction on monitoring (former para. 3) to FSM 2523.3.

2523.03 - Updates the term from "survey" to "assessment" to be consistent with DOI's terminology. Moves the requirement for BAER treatments to be consistent with Forest plans from FSM 2523.03, paragraph 4 to FSM 2523.04c, paragraph 4. Establishes a limit of 1 year from containment of the fire for BAER treatments to be initiated in compliance with the WFLC decision. Establishes a 3-year limit on BAER maintenance and monitoring in compliance with the WFLC decision. Moves direction on BAER treatments in wilderness from FSM 2523.03, paragraph 5 to FSM 2523.2, paragraph 3f.

2523.04a - Incorporates with changes the responsibility for establishing guidelines for identifying appropriate emergency treatments and providing training on BAER policy training from the Regional Forester (formerly in FSM 2523.04a, para. 1) to the Washington Office, Director of Watershed, Fish, Wildlife, Air, and Rare Plants. Establishes responsibilities for the Director of Watershed, Fish, Wildlife, Air, and Rare Plants to: coordinate broad-scale monitoring and research to document the effectiveness and suitability of specific techniques and treatments, conduct periodic program reviews, and participate in the interagency National Burned Area Response Team.

2523.04b - Establishes responsibility for the Regional Foresters to conduct periodic program reviews. Moves the responsibility for establishing guidelines for appropriate emergency stabilization measures from the Regional Forester to the Washington Office, Director of Watershed, Fish, Wildlife, Air, and Rare Plants.

2523.04c - Establishes responsibility for the Forest Supervisor to: ensure appropriate coordination is achieved between the Incident Management Team and the BAER assessment team and to report annual performance measures and monitoring results in the corporate data bases.

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**Digest--Continued:**

2523.04d - Establishes responsibility for the District Ranger to: ensure adequate and timely transition from the BAER assessment team to the BAER implementation team and establishes a limit of 1 year after containment of the fire to install treatments in compliance with the WFLC decision.

2523.05 - Establishes definitions for the terms: Emergency Stabilization, Rehabilitation, and Restoration in compliance with the WFLC decision.

2523.06 - Establishes timeframes for the BAER process in accordance with the WFLC decision and the DOI process.

2523.1 - Establishes an outline of a Burned-Area report, that is consistent with the DOI direction.

2523.2 - Incorporates with changes direction on emergency stabilization treatments previously set forth in FSM 2523.03. Removes direction on tree planting with emergency stabilization funds.

2523.3 - Establishes direction on monitoring of BAER treatments and programs in response to the GAO report "Better Information Needed on Effectiveness of Emergency Stabilization and Rehabilitation Treatments (GAO-03-430)."

2523.4 - Incorporates with changes the direction on the treatment of suppression damaged areas formerly in FSM 2523.1.

2523.5 - Incorporates with changes direction on financing formerly in FSM 2523.2.

2523.51 - Incorporates with changes the direction on financing of BAER on National Forest System Lands formerly in FSM 2523.21. Removes obsolete direction on the minimum authorization level of \$2,000. Removes obsolete direction that initial BAER expenses be charged to other program funds. Modifies direction allowing tree planting in BAER formerly found in FSM 2523.21, paragraph 5. Establishes 3 years from containment of the fire limit on maintenance, repair, or replacement of treatments. Establishes a limit of 1 year from containment of the fire to initiate treatments. Establishes direction on the use of BAER for Fire-Use fires. Establishes direction to prohibit the use of Emergency Watershed Protection Program funds for BAER treatments.

2523.52 - Incorporates with changes the direction on financing of BAER on other Federal lands formerly found in FSM 2523.23. Acknowledges the Interagency Agreement between the DOI and the Forest Service as governing the financial arrangements for cooperative BAER planning and implementation.

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**Digest--Continued:**

2523.53 - Incorporates with changes the direction on funding of other non-Federal lands previously set forth in FSM 2523.22. Establishes direction on use of the Wyden Amendment in the BAER program.

2523.6 - Establishes direction on overtime, hazardous duty pay, safety requirement, and length of assignments.

2523.7 - Incorporates with changes the reporting requirements formerly set forth in FSM 2523.4. Establishes direction to use the corporate database for annual performance reporting.

2523.8 - Incorporates with changes the evaluation of treatments formerly set forth in FSM 2523.5.

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## **2520.2 - Objective**

To protect National Forest System watersheds by implementing practices designed to maintain or improve watershed condition, which is the foundation for sustaining ecosystems and the production of renewable natural resources, values, and benefits.

## **2520.3 - Policy**

Apply management practices that meet requirements for protecting, maintaining, restoring, or improving watershed conditions.

## **2521 - WATERSHED CONDITION ASSESSMENT**

### **2521.02 - Objectives**

1. To assess long-term trends of watershed conditions as influenced by integrated land use practices.
2. To assess the changes in watershed capability to produce resource outputs that result from changes in watershed condition.
3. To use a consistent and scientific approach to land management and to assess, protect, and restore watershed condition.

### **2521.03 - Policy**

1. Use Federal guidelines for delineation of watershed hydrologic unit boundaries.
2. Use a science-based approach to assess watershed condition.
3. Classify the condition of watersheds.
4. Use an integrated approach to identify specific watersheds as a priority for protection and management and for improvement.



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## **2521.04 - Responsibility**

### **2521.04a - Director, Watershed, Fish, Wildlife, Air, and Rare Plants Staff, Washington Office**

The Director, Watershed, Fish, Wildlife, Air, and Rare Plants Staff, Washington Office, has the responsibility to:

1. Consult and coordinate with other Federal agencies to develop approaches and guidance for watershed delineation, watershed assessment, and classification of watershed condition.
2. Consult and coordinate with other Federal agencies to ensure policies and procedures for National Forest System lands are consistent with those of other Federal lands.
3. Develop criteria and standards for classifying watershed condition for the Government Performance and Results Act (GPRA) assessment, Forest plans, and program development.
4. Develop criteria for determining and displaying watershed condition trends for the GPRA assessment, Forest plans, and program development.
5. Use the results of watershed condition analyses for the GPRA assessment and as a basis for defining needs and opportunities in the program alternatives.

### **2521.04b - Regional Foresters**

Regional Foresters have the responsibility to:

1. Develop and approve appropriate contracts, cooperative agreements, and memorandums of understanding with multicounty and State-level agencies and groups when in the public interest.
2. Develop guidelines and procedures, based upon national criteria and standards, for establishing priorities for assessment and monitoring of watershed conditions and trends. Ensure that assessment and monitoring data are available in a corporate data base.
3. Determine how watershed condition shall be integrated in Regional, Forest, and project planning processes.
4. Work with States, Tribes, and other interests to identify watersheds as priorities for protection and management and for improvement.
5. On the basis of priority watersheds, and by use of economic and environmental analyses, identify opportunities for improving and maintaining watershed condition.

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### **2521.04c - Forest Supervisors**

Forest Supervisors have the responsibility to:

1. Assess and monitor watershed conditions and trends, and enter data into a corporate data base.
2. Work with States, Tribes, local governments, and other interests to identify watersheds as priorities for protection and management and for improvement.
3. Coordinate watershed priorities and resource management activities on National Forest System lands to attain Forest plan goals and objectives for watershed condition.
4. Cooperate with other agencies, groups, and individuals whose plans or proposals affect watershed condition on National Forest System lands.
5. With concerned agencies and groups, develop and approve appropriate contracts, memorandums of understanding, and cooperative agreements that govern the assessment, improvement, and monitoring of watershed condition.

### **2521.05 - Definitions**

Hydrologic Condition. The current state of the processes controlling the yield, timing and quality of water in a watershed.

Hydrologic Function. The behavioral characteristics of a watershed described in terms of ability to sustain favorable conditions of water flow. Favorable conditions of water flow are defined in terms of water quality, quantity, and timing.

Potential. The difference between current factor values and the capability to adjust toward reference condition values.

Reference. The range of a factor that is representative of its recent historical values prior to alteration of its environment.

Soil Function. The characteristic physical and biological activity of soils that influences productivity, capability, and resiliency.

Tolerance. The point beyond which there is high risk that potential may be permanently altered or impaired through changes in specified physical, chemical, and biological factors brought about by management activities or natural events.

Watershed Condition. The state of a watershed based upon physical and biological characteristics and processes affecting hydrologic and soil functions.

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## **2521.1 - Watershed Condition Classes**

Evaluate watershed condition and assign one of the following three classes:

1. Class I Condition. Watersheds exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. The drainage network is generally stable. Physical, chemical, and biologic conditions suggest that soil, aquatic, and riparian systems are predominantly functional in terms of supporting beneficial uses.

2. Class II Condition. Watersheds exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. Portions of the watershed may exhibit an unstable drainage network. Physical, chemical, and biologic conditions suggest that soil, aquatic, and riparian systems are at risk in being able to support beneficial uses.

3. Class III Condition. Watersheds exhibit low geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. A majority of the drainage network may be unstable. Physical, chemical, and biologic conditions suggest that soil, riparian, and aquatic systems do not support beneficial uses.

## **2521.11 - Use of Watershed Condition Classes**

### **2521.11a - Needs Identification**

Use watershed condition in conjunction with other resource conditions and with technical and economic feasibility to determine the need for management actions and treatments to help achieve goals and objectives.

### **2521.11b - Priority Setting**

Use watershed condition to help determine priority fifth field (code) watersheds and decide on treatment priorities within them. Also consider other resource factors, and risks, values and benefits, economics, social factors, and partnership opportunities when setting priorities.

### **2521.11c - Trend Identification**

Use watershed condition at different points in time to determine trend in response to management, atmospheric deposition of materials, and/or treatments.

## **2521.2 - Reporting**

Use watershed condition, trend, and treatment information as appropriate to respond to annual and long-term reporting requirements. Report on the status and trend of watershed condition for the Government Performance and Results Act (GPRA) assessment.

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## **2522 - WATERSHED IMPROVEMENT**

Watershed improvement includes all work that is done directly and indirectly to improve watershed condition. This work is done to stabilize, maintain, rehabilitate, or improve watersheds so that they should achieve Forest plan goals and objectives, and State water quality requirements. The rehabilitation of abandoned mined land is included within the watershed improvement program.

### **2522.02 - Objectives**

1. To restore degraded watershed conditions by stabilizing soil, controlling surface runoff and erosion, reducing flood potential, improving long-term soil productivity, and stabilizing the drainage network.
2. To improve watershed conditions.

### **2522.03 - Policy**

1. Implement watershed condition improvement projects when economically, socially, and environmentally feasible. Project development is based upon an understanding of process and functions determined through a watershed assessment. Favor projects that require minimal or no maintenance.
2. Perform an effectiveness analysis for all proposed watershed condition improvement projects. Include both onsite and off-site benefits and values in the analyses. As appropriate, estimate results for non-National Forest System lands, too.
3. Design and implement watershed improvement projects on priority watersheds to achieve a specified improvement in watershed condition.
4. Assign priorities for improving watershed condition in order of decreasing importance as follows:
  - a. Those posing menace to life or property because of flood threats or possible mud or debris flows.
  - b. Those not meeting, or facing an imminent threat of not meeting, water quality requirements of the Forest plan.
  - c. Those needing action to maintain water quality or achieve other Forest plan goals and objectives.
5. Do not use watershed improvement funds for water yield enhancement activities or soil productivity enhancement (FSM 2522.12d and 2522.13).

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**2522.04 - Responsibility**

**2522.04a - Director, Watershed, Fish, Wildlife, Air, and Rare Plants Staff, Washington Office**

The Director, Watershed, Fish, Wildlife, Air, and Rare Plants Staff, Washington Office, has the responsibility to develop policy and program direction and to assign targets for the watershed improvement program.

**2522.04b - Regional Foresters**

Regional Foresters have the responsibility to:

1. Establish Regional guidelines for priorities for watershed improvement projects.
2. Establish and maintain a corporate database of watershed improvement needs.
3. Provide training for personnel involved in watershed improvement planning, project implementation, maintenance, monitoring, and reviews.

**2522.04c - Forest Supervisors**

Forest Supervisors have the responsibility to:

1. Develop and maintain a Watershed Improvement Needs Inventory in a corporate database.
2. Identify priority watersheds and develop and approve prescriptions and plans for a Forest watershed improvement program. Delegate the development of detailed prescriptions and plans to the District Rangers when expertise is available at the District level.

**2522.04d - District Rangers**

District Rangers have the responsibility to:

1. Maintain the District Watershed Improvement Needs Inventory, identify high priority improvement projects, and, as delegated by the Forest Supervisor, prepare prescriptions and plans for improvement projects.
2. Ensure that funded watershed condition improvement projects are accomplished and that treatment measures are implemented as prescribed and approved.
3. Perform needed maintenance of improvement projects.

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## **2522.1 - Watershed Improvement Activities**

Watershed improvement activities are land treatments or management measures are implemented to improve watershed condition.

### **2522.11 - Watershed Condition Improvement**

Install land treatment and structural measures to reduce erosion, stabilize land mass movement, mitigate adverse soil chemistry, and provide for favorable conditions of water flow. Measures include: vegetative and mechanical sheet erosion control; rehabilitation of abandoned roads and trails; stream bank, gully, and lakeshore stabilization; stream channel clearing; sediment basin construction; prescribed fire; insect and disease control; invasive plant control; and other activities designed to stabilize watersheds.

### **2522.12 - Water Yield Enhancement**

Water yield enhancement includes the following activities set out in the following sections FSM 2522.12a - 2522.12d.

#### **2522.12a - Modified Forest Structure**

Modification of forest structure can influence the deposition and melt of snow. When developing timber harvest plans in water short areas, consider modifying harvest patterns and procedures to increase water yields. Where Forest plans indicate a need for both increased water and available storage to recover the increased yield, evaluate opportunities to enhance existing water supplies. Implement enhancement practices only if cost-effective, environmentally and scientifically feasible, and consistent with other resource uses and values.

#### **2522.12b - Weather Modification**

Support properly designed and technically sound snow augmentation or other weather modification activities carried out by cooperators, provided those activities and anticipated results are consistent with any applicable law or regulation governing the administration and management of National Forest System lands. See FSM 2323.45 for the policy on weather modification over wilderness.

#### **2522.12c - Type Conversion**

Do not permit the conversion of vegetative types for the purpose of increasing water yields, until such conversion is proved to be environmentally sound, and cost effective, and can meet the objectives of the Forest plan.

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**2522.12d - Funding Water Yield Enhancement Projects**

Project proponents shall provide direct capital investments needed to implement, monitor, and maintain water yield enhancement projects. If proposed and implemented by the Forest Service, it is appropriate to multifinance such projects using watershed administration funds and funds contributed by the benefiting functional areas, or funds appropriated specifically for this purpose.

**2522.13 - Soil Productivity Enhancement**

Undertake these activities to improve soil productivity on areas in satisfactory watershed condition where increased resource outputs and improved watershed condition will result, when compatible with current Forest plans. Activities include using soil amendments and fertilizers and introducing plant species that biologically increase plant nutrients in the soil. Although soil productivity enhancement measures often improve watershed condition, benefiting functional resource areas shall fund implementation.

**2522.14 - Reclamation of Abandoned Mined Land**

This activity includes all work associated with the reclamation of land and water resources adversely affected by past mining. Activities funded through the Interdepartmental Abandoned Mine Lands Watershed Initiative (AML), the Hazardous Materials Management Program, the regular watershed improvement program, the Office of Surface Mining (OSM), and the States are included.

The AML initiative is managed by the Director of Minerals and Geology. The AML initiative stresses reclamation on a watershed basis and cooperation with other Federal and State agencies and interested parties.

The Hazardous Materials Management Program is managed by the Director of Engineering. One of the activities of the Hazardous Materials Management Program is the cleanup of mining impacted lands that qualify under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA) (FSM 2160).

The OSM and States with approved programs can complete reclamation as described in the Surface Mining Control and Reclamation Act (SMCRA). The SMCRA funds are available only to States with historic coal mines. These funds are intended to be used to mitigate safety, human health, and environmental impacts of historic coal mines. However, if a State certifies that all reclamation of coal mines is completed, the SMCRA funds can be used to mitigate safety hazards at non-coal mine sites and for other purposes, such as the reclamation of hard-rock mine sites. Contact and work with States to include National Forest System abandoned mine reclamation needs in State inventories and State reclamation plans.

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Identify abandoned mined land reclamation needs as part of the watershed improvement needs inventory. Work with the Minerals and Geology Staff and the Engineering Staff to identify and use available funding options prior to expending watershed improvement funds.

## **2522.2 - Watershed Improvement Planning**

Identify problems, determine cause and effect, evaluate alternatives through watershed or ecosystem assessments, and develop integrated resource management prescriptions to improve watershed condition.

### **2522.21 - Controls**

Establish controls for watershed improvement activities by:

1. Providing for adequate supervision during project implementation.
2. Coordinating activities with other resource land improvement activities.
3. Curtailing resource use on the project area, if necessary.
4. Monitoring, evaluating, and documenting the implementation and effectiveness of measures used.
5. Performing necessary maintenance to avoid loss of capital investments.
6. Maintaining project accounting records to help make future project cost estimates.

### **2522.22 - Use of K-V Funds for Watershed Improvements**

Include needed soil and water protection and improvement activities in the sale area improvement plan for the timber sale, following direction in FSH 2409.19, Renewable Resource Uses for Knutson-Vandenberg (K-V) Fund Handbook.

## **2523 - EMERGENCY STABILIZATION - BURNED-AREA EMERGENCY RESPONSE (BAER)**

### **2523.01 - Authority**

Funding authority for the Forest Service to conduct emergency stabilization is contained in the annual Appropriation Act for Interior and Related Agencies, which provides for the use of Wildland Fire Management funds “for necessary expenses for . . . emergency rehabilitation of burned-over National Forest System lands and water.”



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Public Law 105-277 provides authority to expend Burned Area Emergency Response (BAER) funds on non-federal lands, when there is a clear benefit to the National Forest System lands. Public Law 106-558 provides authority to pay the BAER assessment team personnel true overtime.

### **2523.02 - Objectives**

To determine the need for and to prescribe and implement emergency treatments to minimize threats to life or property or to stabilize and prevent unacceptable degradation to natural and cultural resources resulting from the effects of a fire.

### **2523.03 - Policy**

1. Conduct assessments (FSM 2523.1) promptly on all burned areas following wildland fires to determine if emergency stabilization treatment is needed. An interdisciplinary process should be used when fires exceed 300 acres or when potential threats to life, property, natural resources, or cultural resources exist as a result of a smaller fire.
2. Undertake stabilization treatments only when an analysis shows that planned actions are likely to substantially reduce risks and are compatible with land and resource management plans and wilderness management objectives (FSM 2323 and FSH 2509.13, sec. 26.6).
3. Ensure measures that provide essential and demonstrated protection at minimum cost while meeting emergency stabilization objectives.
4. Ensure that approved, burned-area emergency stabilization measures are expeditiously accomplished prior to the time when damaging or degrading events are likely to occur and no later than 1 year after containment of the fire.
5. Monitor burned areas for up to 3 years from containment of the fire to ensure emergency stabilization measures are functioning as planned and are effective. Maintain, repair, or replace emergency treatments for up to 3 years from containment of the fire where failure to do so would significantly imperil watershed functionality or result in serious loss of downstream values.
6. Propose treatments in wilderness only if necessary to protect life or property (inside or outside wilderness) or resource values outside wilderness, or to prevent an unnatural loss of wilderness resources (FSM 2323.43b).

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### **2523.04 - Responsibility**

#### **2523.04a - Director, Watershed, Fish, Wildlife, Air, and Rare Plants Management Staff, Washington Office**

The Director has the responsibility to:

1. Allocate specific annual Burned Area Emergency Response (BAER) funding approval authority to the Regional Foresters.
2. Take action on requests for BAER funds for emergency stabilization of burned areas for those projects above the Regional Forester's delegated funding authority, within the required timeframe.
3. Establish guidelines for identifying appropriate emergency stabilization measures.
4. Provide BAER policy training.
5. Coordinate broad-scale monitoring and research to document the effectiveness and suitability of specific techniques and treatments.
6. Conduct periodic program reviews to evaluate the consistency of program direction in relationship to other programs, and to identify needs for improved coordination and direction. Program reviews may be done in coordination with the Department of the Interior.
7. Participate on the National Burned Area Response team.

#### **2523.04b - Regional Foresters**

Regional Foresters have the responsibility to:

1. Take action on burned area emergency stabilization reports within their delegated authority, and transmit approval information to the Director, Watershed, Fish, Wildlife, Air, and Rare Plants Management, Washington Office, within the required timeframes.
2. Review, make recommendations, and transmit, within the required timeframes, Burned-Area Reports to the Director, Watershed, Fish, Wildlife, Air and Rare Plants Management, Washington Office, if the funds requested are above the Regional Forester's delegated funding approval authority.
3. Evaluate the effectiveness of applied stabilization measures.
4. Transmit final accomplishment reports on Form FS-2500-8, Burned-Area Report, to the Director, Watershed, Fish, Wildlife, Air, and Rare Plants Management, Washington Office.

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5. Provide Burned Area Emergency Response (BAER) policy and technical training.
6. Conduct periodic program and project reviews to evaluate consistency of regional and forest program direction and to identify needs for improved coordination and direction.

**2523.04c - Forest, Grassland, Prairie, and Area Supervisors**

Forest, Grassland, Prairie, and Area Supervisors have the responsibility to:

1. Evaluate all wildfires to determine if emergency treatments are warranted. Designate an interdisciplinary Burned Area Emergency Response (BAER) team to perform a burned-area survey on fires larger than 300 acres (FSH 2509.13, ch. 10) or when the threats to life, property, natural resources, or cultural resources exist as a result of a smaller fire.
2. Ensure appropriate coordination is achieved between the Incident Management Team and the BAER assessment team.
3. Submit initial and interim Forms FS-2500-8, Burned-Area Report, and monitoring plan, if applicable, to the Regional Forester within required timeframes.
4. Provide appropriate levels of involvement with burned-area emergency response survey teams to ensure treatments and compatible with land and resource management plans.
5. Conduct a cost/risk analysis commensurate with the scope and complexity of the stabilization plan to ensure that planned treatments would likely reduce risks and would be cost-effective.
6. Report project accomplishments by transmitting the final Form FS-2500-8, Burned-Area Report, and annual monitoring report to the Regional Forester within required timeframes.
7. Monitor projects to determine if emergency stabilization measures have met the planned objectives or need maintenance, repair, or replacement.
8. Report annual performance measures and monitoring results in corporate databases.

**2523.04d - District Rangers**

District Rangers have the responsibility to:

1. Brief the Burned Area Emergency Response (BAER) assessment team, to ensure that they are familiar with the land and resource management plan objectives for the area.
2. Install approved and funded emergency stabilization measures on fire-damaged areas prior to damaging events and no later than 1 year after containment of the fire.

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3. Monitor burned areas to ensure stabilization treatments and other measures are functioning as planned and are effective.
4. Maintain treatments to keep them functioning as designed, using monitoring results to plan follow-up action.
5. Install or ensure that the fire suppression organization promptly installs necessary remedial treatments on areas damaged by suppression activities using appropriate funds (FSM 2523.1).
6. Ensure adequate and timely transition from the BAER assessment team to the BAER implementation team.

**2523.05 - Definitions**

Emergency Stabilization. Planned actions to stabilize and prevent unacceptable degradation to natural and cultural resources, to minimize threats to life or property resulting from the effects of a fire, or to repair/replace/construct physical improvements necessary to prevent degradation of land or resources. Emergency stabilization actions must be taken within 1 year of containment of the fire.

Rehabilitation. Efforts undertaken within 3 years of a wildland fire to repair or improve fire-damaged lands unlikely to recover to management-approved conditions, or to repair or replace minor facilities damaged by fire. Rehabilitation is financed using non-emergency funding.

Restoration. The continuation of rehabilitation activities beyond the initial 3 years or the repair or replacement of major facilities damaged by the fire. Restoration is financed using non-emergency funding.

**2523.06 - Timeframes**

1. Initial requests for funding for a Burned Area Emergency Response (BAER) should be submitted to the Regional Forester within 7 calendar days after total containment of the fire, unless special arrangements have been negotiated.
2. Regional responses (decisions or referral to Washington Office, Director of Watershed, Fish, Wildlife, Air, and Rare Plants) to BAER requests should be completed within 3 business days of receipt.
3. Washington Office responses to BAER requests should be completed within 3 business days of receipt.

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4. Approved treatments should be installed before damaging or degrading events are likely to occur and no later than 1 year after containment of the fire.
5. Monitoring approved emergency stabilization treatments can occur for up to 3 years (FSM 2523.03).
6. Maintenance, repair, or replacement of emergency stabilization treatments can occur for up to 3 years (FSM 2523.03).
7. A final treatment accomplishment report, Form FS-2500-8, Burned-Area Report, should be submitted to the Washington Office, Director of Watershed. Fish, Wildlife, Air, and Rare Plants, within 60 days following the completion of planned BAER treatments.
8. Monitoring reports funded through BAER, are submitted to the Regional Forester annually at the end of each monitoring season.

**2523.1 - Burned Area Emergency Assessment**

An immediate and rapid assessment of the burned area is conducted in order to identify post-fire threats, critical values at risk, and need for emergency stabilization measures. The burned-area emergency assessment is not a comprehensive evaluation of all fire damages or long-term rehabilitation or restoration needs.

Form FS-2500-8, Burned-Area Report, provides a summary of the emergency assessment and must include a description of each of the following:

1. Post-fire threats (Part V, Section A),
2. Values at risk (Part V, Section A),
3. Management objectives (Part V, Section B),
4. Prescriptions and cost estimates (Part V, Section H and Part VI),
5. Analysis of treatment effectiveness (Part V, Section C and D),
6. Economic analysis of treatments (Part V, Section E and F), and
7. Monitoring plan (Part V, Section I).

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## **2523.2 - Emergency Stabilization Treatments**

Emergency stabilization treatments are intended to be temporary measures that do not require maintenance or are removed after objectives have been met. Costs covered by emergency funding authority include the removal of treatments when they are no longer needed or the maintenance of treatments when necessary to maintain their effectiveness for up to 3 years. Treatments should be designed to be self-maintaining over their effective life.

1. Burned Area Emergency Response (BAER) treatment priorities. The BAER treatment priorities are:
  - a. Human life and safety,
  - b. Property, and
  - c. Critical natural/cultural resource.
2. Order of treatment preference. Observe the following order in undertaking treatments:
  - a. Natural recovery. In situations where no emergency exists or where practical preventive measures are not feasible, no BAER treatments are allowed.
  - b. Administrative closures. In situations where an emergency exists and
    - (1) it is possible to restrict use to protect public health and safety or
    - (2) where use may significantly delay critical recovery, administrative closures must be used.
  - c. Treatment. For other emergency situations, proven measures should be applied to stabilize soil or biotic communities or to moderate the intensity or severity of effects to minimize risks to life or property and to prevent unacceptable degradation of critical natural or cultural resources or downstream values.
3. Appropriate Measures. Use appropriate measures as follows:
  - a. Plant Materials. Mulching, seeding, or planting of grass, forbs, shrubs, or trees are appropriate treatments when needed to reduce unacceptable erosion, to stabilize critical or significant natural or cultural resources, to prevent permanent impairment to critical habitat for Federal and State listed, proposed, or candidate threatened or endangered species, or to prevent detrimental invasion by non-native plants. Use only planted materials that should be effective within two growing seasons. Comply with FSM 2081, Executive Order 13112, and applicable State noxious weed prevention requirements in setting standards for seed, straw, and other plant materials.

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Natural recovery by native species is preferred. When practical, use seeds and plants in burned-area emergency stabilization projects that originate from genetically local sources of native species. When native materials are not available or suitable, give preference to non-native species that meet the treatment objectives, are nonpersistent, and are not likely to spread beyond the treatment area.

b. Structures. Structural treatments are appropriate when needed to minimize the risk to downstream life and property, to reduce unacceptable erosion, to minimize unacceptable degradation of water quality, to stabilize critical or significant natural or cultural resources, or to protect treated or recovering areas from uses that could cause erosion or interfere with recovery.

c. Hazard Removal, Warning, and Controls. Stabilization or removal of physical hazards caused or aggravated by the fire that threaten life or property are appropriate treatments when there are no other protection options. Warning, signing, or other measures should be used to limit immediate threats to public safety or to limit public or livestock access in order to protect treated or recovering areas.

d. Facility Replacement. Replacement of destroyed or damaged minor facilities, such as signs or guardrails, is an appropriate measure when human health or safety is at risk and there are no other protection options.

e. Consultation. Consultation with other Federal, State, Tribal, and local offices is appropriate to ensure that emergency treatments are compatible with the Endangered Species Act, National Historic Preservation Act, Clean Water Act, and other laws as applicable. Initiate any necessary supporting processes prior to installing ground-disturbing treatments and only within areas considered for treatment.

f. Wilderness. When prescribing treatments in wilderness, refer to FSM 2326 for guidance on the use of motorized equipment and mechanical transport.

g. Other Measures.

(1) Patrolling, camouflaging, or burying significant heritage sites are appropriate actions when necessary to prevent a critical loss of heritage site value when looting potential is high. Patrolling should be considered only when there are no other effective alternatives.

(2) Direct treatment of invasive plants introduced or aggravated by the fire or fire suppression activities is appropriate when indirect prevention measures are not practical.

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(3) All BAER activities that have the potential to introduce or spread noxious weeds, both terrestrial and aquatic, should include appropriate prevention practices.

(4) No more than two Public Information Officers should be assigned to an incident at the same time.

### **2523.3 - Monitoring**

Monitoring is done to verify the implementation of emergency stabilization treatments and observe the site-specific effectiveness and functioning of treatments in order to determine if additional treatments are needed. Monitoring of recovery may be done in certain cases to evaluate if subsequent treatments are warranted where values at risk were identified, but no treatment measures were implemented, due to concerns regarding effectiveness or practicality. Monitoring and evaluation of emergency stabilization treatments may be funded for up to 3 years following containment of the fire. Funding beyond the first year is contingent upon the results from the previous year and requires submission of the monitoring report.

All Burned Area Emergency Response (BAER) reports that include an effectiveness monitoring component must include a monitoring plan that identifies:

1. Monitoring questions,
2. Measurable indicators,
3. Data collection techniques (consistent with appropriate protocols),
4. Analysis, evaluation, and reporting techniques, and
5. Monitoring report timeframes.

Broad-scale monitoring and research regarding the effectiveness and suitability of specific techniques and treatments is coordinated at the national level. Opportunities for this type of monitoring may be identified at the project level.

During the 1-year emergency stabilization treatment period, monitoring may also be done to determine the post-fire presence of invasive species when there is a likelihood of introduction or expansion of invasive species. After 1 year, any additional invasive species detection monitoring should be conducted using regular program funds.

### **2523.4 - Suppression-Damaged Areas**

Rehabilitation of suppression-caused damage is the responsibility of the fire incident commander and is charged to the incident. The local administrative unit may undertake suppression rehabilitation in the following situations:



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1. Suppression rehabilitation is delayed (for example, seeding) due to seasonal considerations. The incident commander must notify the agency administrator of any known suppression rehabilitation needs that have not been completed.

2. Additional suppression rehabilitation needs are identified after the incident management team has demobilized. The local administrative unit may prescribe and implement needed suppression rehabilitation.

In all cases, suppression rehabilitation assessment, design, and implementation should be charged to the incident (FSH 6509.11g).

### **2523.5 - Financing**

Comply with the direction in FSM 2523.51 - 2523.53 in determining the appropriate use of Emergency Fire Suppression funds for burned area emergency stabilization based on jurisdiction of the burned lands.

#### **2523.51 - National Forest System Lands**

1. Approval of the Washington Office, Director of Watershed, Fish, Wildlife, Air, and Rare Plants, is required for all emergency stabilization expenditures that exceed the Regional Forester's annual funding approval authority.

2. Salaries, travel, and expenses of personnel assigned to Burned-Area Emergency Response (BAER) teams, as well as costs associated with implementation, maintenance, and monitoring of approved treatments should be financed from an assigned BAER incident job code using emergency stabilization funds.

3. Emergency stabilization funds may be used for maintenance, repair, or replacement of installed emergency stabilization treatments or measures for 3 years post-fire when appropriate. Submit an interim report to request funding for eligible maintenance, repair, or replacement activities.

4. Any stabilization treatment not implemented within 1 year after containment of the fire would not be funded through the BAER program.

5. Fire-use (prescribed natural fires) or prescribed fires do not qualify for BAER assessment or treatments unless they grow beyond prescription and are declared wildfires. In those cases, BAER activities can only occur on the portion of the fire that burned after the fire was reclassified as an unwanted wildland fire.

6. Non-emergency facility replacement, rehabilitation, and restoration following a wildfire must be financed from other program funds, and not from BAER.

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7. To qualify for emergency stabilization funding, treatments involving seeding or planting of trees or shrubs must achieve treatment objectives within 2 years of planting.

8. Emergency Watershed Protection (EWP) Program funds must not be used for burned-area emergency stabilization on National Forest System lands.

**2523.52 - Other Federal Lands**

For multi-agency fires, consider conducting joint burned-area emergency stabilization assessment, planning, and implementation in coordination with other affected Federal agencies.

The Interagency Agreement between the Bureau of Land Management, Bureau of Indian Affairs, National Park Service, U.S. Fish and Wildlife Service, of the United States Department of the Interior, and the United States Forest Service of the Department of Agriculture effective October 1, 2002 (FS Agreement No. 02-A-11132543-211) governs the financial arrangements for cooperative BAER planning and implementation. Under this agreement, agencies shall not bill for emergency stabilization planning services. Agencies may choose to bill one another by mutual agreement for fire emergency stabilization implementation or rehabilitation implementation.

**2523.53 - Other Non-Federal Lands**

Include the assessment of non-Federal intermingled or adjacent, burned lands in burned-area surveys and reports, as appropriate, to determine watershed response or identify values at risk.

Inform the non-federal landowner or manager of the existence of the Emergency Watershed Protection Program. Such funds may be used to finance watershed protection treatment work on State and private lands.

Under the Watershed Restoration and Enhancement Agreement authority (Pub. L. 105-277, authorized through 2005), Forest Service funding may be used to accomplish work on other ownerships if the work is essential to protect National Forest System lands, roads, or improvements. Use of Burned-Area Emergency Response (BAER) funding to implement emergency stabilization on non-Federal burned lands is appropriate when there is a clear benefit to National Forest System lands, when treatments conducted on National Forest System lands would otherwise not be effective, and when appropriate cost-sharing, protection, and liability agreements with the landowners are initiated.

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### **2523.6 - Human Resources**

The special overtime pay provisions of Public Law 106-558 apply to employees involved in the preparation and approval of emergency stabilization plans. The overtime provisions apply only during the initial emergency assessment period, until the emergency stabilization plan is submitted for approval (FSM 2523.06, para. 1). These overtime pay provisions do not apply to employees involved with treatment implementation or monitoring.

Payment for hazardous duty differentials for Burned-Area Emergency Response (BAER) personnel must follow the regulations contained in 5 CFR 550, utilizing the established hazard and hardship categories identified in Appendix A of Subpart I (5 CFR 550.901-907). The fire-fighting category only applies to personnel directly participating in fighting fires and does not apply to BAER personnel, regardless of the fire containment/control status in the area where the BAER assessment is being performed. Additionally, participation in aerial reconnaissance (helicopter or fixed-wing) during normal weather and flight conditions does not qualify for hazard pay. If unusual or adverse conditions are present, BAER aerial reconnaissance should be delayed until conditions are safe. If it is determined that an allowable hazardous duty category applies to assessment or implementation work, the determination for pay differential must be authorized in advance by the Forest Supervisor. Required documentation to support this determination includes a job hazard analysis, citation of the specific hazard involved (5 CFR part 550, appendix A of subpart I), names of employees, and nature of the work performed under hazardous duties.

All BAER assessment personnel must attend an annual fire-safety refresher, including a review of fire-shelter use and deployment. Refer to FSH 5109.34, Interagency Incident Business Management Handbook for fitness requirements and other fire-safety requirements for BAER personnel.

Length of assignment and work/rest guidelines for BAER personnel follow procedures set forth in the Interagency Incident Business Management Handbook, also. Shift lengths should be less than or equal to ( $\leq$ ) 14 hours for BAER assessment and  $\leq$  12 hours for BAER implementation. BAER assessment assignments normally do not exceed 14 days. Supervisors should monitor employees for signs of fatigue and take appropriate actions to minimize the effects of acute or cumulative fatigue.

### **2523.7 - Reporting**

A final treatment accomplishment report, Form FS-2500-8, Burned-Area Report, must be submitted to the Washington Office, Director of Watershed, Fish, Wildlife, Air, and Rare Plants, within 60 days following the completion of planned treatments funded from BAER. For late-season Burned Area Emergency Response (BAER) projects and/or complex BAER projects, interim accomplishment reports are required.

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Monitoring reports funded through BAER, are submitted to the Regional Forester annually at the end of each monitoring season.

Annual performance reporting must be done through the corporate database.

### **2523.8 - Controls**

Conduct post-treatment evaluations to determine if project objectives have been met. Hold critiques at established frequencies, similar to formal individual fire evaluations (FSM 5194.12), and sometimes in conjunction with them, for selected stabilization projects. Review the promptness of initiation and effectiveness of action by the interdisciplinary team, quality of work on the ground, and effectiveness of project treatments in meeting stated objectives.

### **2524 - SUPPORT**

Watershed management support involves the application and integration of scientific and technical soil and water related knowledge into land, resource, and project plans, as well as the implementation of the plans. These services are provided by the soil and water staff, by advice, counsel, and direct involvement in the preparation of goals, objectives, guidelines, standards, and specific management prescriptions designed for individual land, resource, and project plans and activities. See FSM 2530 and FSM 2550, respectively, for additional direction on support for water resource management and soils management.

#### **2524.02 - Objective**

The objective of providing watershed management support is to provide soil and water expertise to help implement Forest plans and achieve optimum resource outputs consistent with the improvement, protection, and maintenance of watershed condition.

#### **2524.03 - Policy**

1. Identify watershed management support needs in the work planning and budget process.
2. Provide qualified personnel to ensure that decisions involving the use and development of National Forest System lands are made with:
  - a. Understanding of soil and water resource needs, opportunities, capabilities, limitations, and hazards.
  - b. Knowledge of the potential consequences of these decisions on the soil and water resources.
3. Develop and establish procedures and guidelines for providing watershed management support.

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### **2524.1 - Support Planning**

Activities frequently requiring support include land and resource management and project planning by other functions. Services include the preparation of field guides and the training of personnel in other disciplines to a level that should minimize the need for on-site specialist prescriptions in routine situations. Advance planning and control are essential to efficient and effective use of personnel. Coordinated field investigations often require more than one type of expertise. Interdisciplinary teams may be used to provide coordinated and integrated support.

### **2524.2 - Support Operations**

Use existing data to the extent feasible for support needs. Where additional data are required, provide data compatible with past and expected future collection efforts.

Procedures and guidelines developed by individual Regions must, at least, include the following:

1. A timely schedule for providing support services to meet the time frames of each project.
2. Documentation of data collection, analysis, and conclusions, and the criteria used in making interpretations and setting standards.
3. A mechanism for evaluating and documenting the effectiveness of recommendations.
4. Reports that contain soil and water conservation practices needed to maintain and improve watershed condition.
5. Quality control procedures.

### **2525 - MONITORING**

Monitor physical and chemical characteristics of soil and water as a means for assessing watershed condition, and the degree to which planning, management, operation, and maintenance of renewable resources meet established goals and standards (36 CFR part 219). See various authorities addressing monitoring in FSM 2501.

#### **2525.02 - Objectives**

The objectives of monitoring are to:

1. Secure data sufficient to assist line officers and resource managers in evaluating the effects of management activities on the soil and water resources,
2. Support changes in management activities to protect soil and water productivity, and

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3. Detect pertinent physical, chemical, and biological changes in soil properties, sediment production, and water quantity and quality.

### **2525.03 - Policy**

Watershed monitoring activities must be consistent with direction, criteria, and standards specified in the Forest plan. Design and implement soil and water resource monitoring to evaluate effects of each forest management activity or program on basic soil and water quality and productivity.

### **2525.04 - Responsibility**

#### **2525.04a - Regional Foresters**

Regional Foresters have the responsibility to establish Regional guidelines for monitoring of soil and water resources and watershed conditions.

#### **2525.04b - Forest Supervisors**

Forest Supervisors have the responsibility to ensure the interdisciplinary development of monitoring plans, before monitoring begins.

### **2525.1 - Monitoring Plan**

The plan should include:

1. Clear statements of objectives, including data accuracy requirements, collecting procedures, and analytical standards and procedures.
2. A list of selected projects to be monitored, coordinated with monitoring needs specified in the Forest and project plans.
3. The instrumentation, measurement, analysis, and reporting program.
4. The general time schedule for implementation.
5. Provision for periodic evaluation of the monitoring to determine if parameters measured and frequency of sampling meet planned objectives.
6. A schedule for equipment maintenance.
7. Contingency plans in case of breakdown of instrumentation.
8. Instruction for reporting when data indicate major deviation from standards.

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9. Estimated yearly financial requirements.
10. Personnel needs and assignments.
11. Procedures for data storage, analysis, evaluation, and reporting.

## **2526 - RIPARIAN AREA MANAGEMENT**

Riparian areas consist of riparian ecosystems, aquatic ecosystems, and wetlands.

### **2526.02 - Objectives**

1. To protect, manage, and improve riparian areas while implementing land and resource management activities.
2. To manage riparian areas in the context of the environment in which they are located, recognizing their unique values.

### **2526.03 - Policy**

1. Manage riparian areas in relation to various legal mandates, including, but not limited to, those associated with floodplains, wetlands, water quality, dredged and fill material, endangered species, wild and scenic rivers, and cultural resources.
2. Manage riparian areas under the principles of multiple-use and sustained-yield, while emphasizing protection and improvement of soil, water, and vegetation, particularly because of their effects upon aquatic and wildlife resources. Give preferential consideration to riparian-dependent resources when conflicts among land use activities occur.
3. Delineate and evaluate riparian areas prior to implementing any project activity. Determine geographic boundaries of riparian areas by onsite characteristics of water, soil, and vegetation.
4. Give attention to land along all stream channels capable of supporting riparian vegetation (36 CFR 219.27e).
5. Give special attention to land and vegetation for approximately 100 feet from the edges of all perennial streams, lakes, and other bodies of water. This distance shall correspond to at least the recognizable area dominated by the riparian vegetation (36 CFR 219.27e). Give special attention to adjacent terrestrial areas to ensure adequate protection for the riparian-dependent resources.

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**2526.04 - Responsibility**

**2526.04a - Associate Deputy Chief for Resources, National Forest System**

The Associate Deputy Chief for Resources, National Forest System, has the responsibility to:

1. Provide national policy, objectives, guidelines, and minimum standards for protection and improvement of riparian areas on National Forest System lands.
2. Coordinate Forest Service research programs with riparian area management needs.
3. Coordinate riparian area management direction with that of other Federal agencies at the national level.

**2526.04b - Regional Foresters**

Regional Foresters have the responsibility to:

1. Ensure that riparian area management is included in the land management planning process.
2. Provide technical standards, guidance, training, and quality control for the management of riparian areas.
3. Provide criteria for monitoring effectiveness of measures implemented for the protection and improvement of riparian areas.
4. Develop more specific criteria as needed to define riparian areas in terms of soil, vegetation, and landforms.

**2526.04c - Forest Supervisors**

Forest Supervisors have the responsibility to:

1. Inventory riparian areas in the Forest land management planning process.
2. Develop and implement measures to manage and protect riparian areas according to national objectives and Regional standards.
3. Monitor the implementation and effectiveness of management and protection of riparian areas (FSM 1922.6).



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## **2526.05 - Definitions**

**Aquatic Ecosystems.** The stream channel, lake or estuary bed, water, and biotic communities and the habitat features that occur therein.

**Perennial Streams.** Permanently present surface water. Flows occur throughout the year except possibly during extreme drought or during extreme cold when ice forms.

**Riparian Areas.** Geographically delineable areas with distinctive resource values and characteristics that are comprised of the aquatic and riparian ecosystems.

**Riparian-Dependent Resources.** Resources that owe their existence to the riparian area.

**Riparian Ecosystems.** A transition area between the aquatic ecosystem and the adjacent terrestrial ecosystem; identified by soil characteristics or distinctive vegetation communities that require free or unbound water.

## **2526.1 - Inventory and Analysis**

Provide the following information as needed for land and resource management planning:

1. Riparian-dependent resources.
2. Streamside vegetation and its value as fish and wildlife habitat and its relation to the control of sediment originating on upland areas, to the maintenance of stream temperatures, and to the stability of streambanks and channels.
3. Ground water recharge areas, factors, and conditions.
4. Possibility of reducing or otherwise modifying the risk of flooding.
5. Water quality and the deposition or buffering of potential water pollutants.
6. Fluctuations in water levels, quantities, and timing of flow in relation to habitat of fish, waterfowl, mammals, and aquatic organisms, and to maintenance of phreatophytes and other riparian vegetation.
7. Cumulative effects of management activities.
8. Stream channel conditions.

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**2526.2 - Monitoring**

Apply a monitoring system consistent with the sensitivity of the riparian area and capable of measuring attainment of Forest plan objectives for dependent resources.

**2527 - FLOODPLAIN MANAGEMENT AND WETLAND PROTECTION**

**2527.01 - Authority**

Executive Orders 11514, 11988, and 11990, and the general authorities cited in FSM 2501 apply to floodplain management and wetland protection.

**2527.02 - Objectives**

1. To reduce risk of flood loss.
2. To minimize impacts of floods on human safety, health, and welfare.
3. To minimize destruction, loss, and degradation of wetlands.
4. To preserve and restore the natural and beneficial values of floodplains and wetlands.

**2527.03 - Policy**

1. Recognize floodplains and wetlands as specific areas.
2. Provide opportunity for early public review of plans or proposals for actions in floodplains.
3. Avoid adverse impacts that may be associated with the occupancy and modification of floodplains and with the destruction, loss, or degradation of wetlands. Avoid filling of land within floodplains and wetlands wherever practicable.
4. Do not permit floodplain development and new construction in wetlands wherever there is a practicable alternative.
5. Promote nonstructural flood protection methods to reduce flood hazard and flood loss.
6. Preserve and, where needed and feasible both economically and technically, enhance the natural and beneficial function and values of wetlands.
7. Provide technical assistance to Federal and State forestry programs.

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**2527.04 - Responsibility**

**2527.04a - Associate Deputy Chief for Resources, National Forest System**

The Associate Deputy Chief for Resources, National Forest System, has the responsibility to ensure that floodplain management and wetland protection and management considerations are included in all Forest Service activities and programs affecting land use.

**2527.04b - Regional Foresters and Area Director**

The Regional Foresters and Area Director have the responsibility to:

1. Ensure that flood hazards, floodplain and wetland values, and all alternatives that affect a floodplain or that involve new construction in wetlands are fully considered in the Forest Service planning and decisionmaking processes.
2. Coordinate activities and interchange of floodplain and wetlands information with other concerned Federal and State agencies.
3. Ensure that cooperative technical and financial assistance programs include an evaluation of floodplain and wetland values.
4. Ensure that all documents conveying interest in or authorizing use of floodplains and wetlands on National Forest System lands contain restrictions that will reduce the risk of loss and preserve the national and beneficial values served by floodplains and wetlands.

**2527.04c - Forest Supervisors**

Forest Supervisors have the responsibility to:

1. Analyze proposed actions affecting floodplains or involving new construction in wetlands to assess the specific flood hazards; quantify floodplain or wetland values of the areas; determine the impacts of the proposal on those hazards and values; formulate and evaluate land and resource management options; come up with a practicable alternative action or location; and determine whether the "no action" option is practicable.
2. Modify plans, activities, and designs to minimize impacts of the action and to mitigate its effects on the natural and beneficial values of the floodplain or wetland in all actions where an alternative to an action in or affecting the floodplain or new construction in a wetland is not practicable.

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3. Ensure that all practicable and necessary mitigating measures are incorporated in specifications for the proposed action, and that the implementation of the selected action is accomplished in a manner that to the extent practicable, restores and preserves the natural and beneficial values served by floodplains and preserves and enhances the natural and beneficial values of wetlands.

4. Require flood hazard and wetlands evaluations prior to issuing of licenses, permits, loans, or grants-in-aid, and provide assistance to applicants in obtaining help to make such evaluations in their proposals.

5. Ensure that design, construction, or rehabilitation of Forest Service real property is in accordance with standards and criteria outlined in the National Flood Insurance Program (42 U.S.C. 4001 and following) using flood-proofing measures and structural elevation, where practicable.

6. Provide for the placement of appropriate signs to enhance public awareness of and knowledge about flood hazards.

7. Establish specific management standards and guidelines for floodplains and wetlands as a part of forest planning actions.

8. Cooperate with State and County governments in the development and implementation of appropriate early flood warning and evacuation plans.

**2527.05 - Definitions**

Action. Any Federal activity including:

- a. Acquiring, managing, and disposing of Federal lands and facilities,
- b. Providing federally undertaken, financed, or assisted construction or improvements, and
- c. Conducting Federal activities and programs affecting land use, including, but not limited to, water and related land and resources planning, regulating, and licensing activities.

Critical Action. Any action for which even a slight chance of flooding would be too great.

Facility. Any human-made or human-placed items other than a structure.

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Flood or Flooding. A general or temporary condition of partial or complete inundation of normally dry land areas from the overflow of inland and/or tidal waters, and/or the unusual and rapid accumulation or runoff of surface waters from any source.

Flood Risk. The probability that one or more events will exceed a given flood frequency within a specified period of years.

Floodplain.

- a. Base Floodplain. The lowland and relatively flat areas joining inland and coastal water including the debris cones and flood-prone areas of offshore islands and, at a minimum, that area subject to a 1 percent (100-year recurrence) or greater chance of flooding in any given year.
- b. Coastal Floodplain. A flood-prone area adjacent to estuaries or oceans. Flooding in these areas is due primarily to landward flows caused by unusually high tides, storm surges, tsunamis, or a combination of these causes.
- c. Lake Shore Floodplain. A flood-prone area adjacent to lakes. Flooding in these areas is due primarily to inflow of water exceeding that of outflow. It may also be due to landward flows of water caused by strong winds, unusually high tides, or a combination of these causes.

Floodway. That portion of the floodplain which is effective in carrying flow, within which this carrying capacity must be preserved and where the flood hazard is generally highest; that is, where flood depths and velocities are the greatest.

Wetlands. Those areas that are inundated by surface or ground water with a frequency sufficient to support and that, under normal circumstances, do or would support a prevalence of vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

### **2527.06 - Applicability and Exemptions From Executive Order Requirements**

Use the following eight-step decisionmaking process in applying the floodplain management Executive order. The eight steps shall be included in any environmental assessment prepared under the National Environmental Policy Act (NEPA), as follow:

1. Determine whether the proposed action is located in the base floodplain (500-year floodplain for critical actions); or whether it has the potential to affect a floodplain or indirectly support floodplain development. If not, or if an action is of an emergency nature (FSM 2527.06b), requirements of the Executive order will have been satisfied.

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2. Notify the public at the earliest possible time of any plan or proposal to undertake, support, or allow an action which would result in the occupancy, modification, or development in a floodplain, and involve the affected and interested public in the decisionmaking process.

3. Identify and evaluate practicable alternatives to locating a proposed action in a floodplain, including alternative sites outside the floodplain, alternative actions serving the same purpose as the proposed action, and the "no action" option.

4. Identify the full range of potential direct or indirect adverse impacts associated with the occupancy or modification of the floodplain and the potential direct and indirect support of floodplain development that could result from the proposed action.

5. Identify and evaluate mitigating measures that will minimize the potential adverse impacts of the action if avoidance cannot be achieved, and measures that will preserve and restore or enhance the natural and beneficial floodplain values that would be adversely impacted by the action.

6. Reevaluate the proposed action to determine first, if it is still practical, even with the application of appropriate mitigating measures and in light of its exposure to flood hazards and its potential to adversely affect the floodplain and, second, if the alternatives identified in step 3 are practicable in light of information gained in the preceding steps 4 and 5.

7. Prepare and provide the public with a finding and public explanation of any final decision that there is no practicable alternative to locating an action in, or adversely affecting, a floodplain.

8. Provide ongoing review of implementation and post-implementation phases of the proposed action to ensure that all provisions associated with the action, including appropriate mitigating measures as identified in the environmental assessment, are fully implemented.

The numbering of steps 1 through 8 does not firmly require that the steps be followed sequentially. As information is gathered throughout the decisionmaking process and as additional information is needed, reevaluation of lower-numbered steps may be necessary.

**2527.06a - Test for Applicability**

Analyze the proposed action's potential to result in longer short-term adverse impacts associated with:

1. The occupancy or modification of floodplains.
2. The direct and indirect support of floodplain development.
3. The destruction, loss, or degradation of wetlands.
4. The direct or indirect support of new construction in wetlands.

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### **2527.06b - Exempted Emergency Actions**

Assistance for emergency work performed pursuant to sections 305 and 306 of the Disaster Relief Act of 1974 (42 U.S.C. 5145 and 5146) are exempted from the requirements of the Executive orders. This exemption applies to unanticipated emergency situations that require immediate action to prevent or reduce risk to public health or safety or risk of serious property or resource losses.

### **2527.1 - Identification of Floodplains and Wetlands**

Identify the general location of floodplains and wetlands on National Forest System lands during the land and resource management planning process in the delineation and inventory of riparian areas (FSM 2526). Define specific locations during the preliminary phases of project planning for proposed development or new construction within floodplains or wetlands.

### **2527.2 - Public Notice Requirements**

Provide opportunity for public review and comment on all proposed actions involving occupancy, modification, or development in or affecting floodplains or the destruction, loss, degradation of or new construction in or affecting wetlands at the earliest possible time and throughout the decisionmaking process. Upon completion of this process, provide the public with an account of the final decision. Specific procedures for public involvement are in 40 CFR 1507.1, 1502.25, and 1506.6.

### **2527.3 - Analysis and Evaluation of Proposed Actions and Practicable Alternatives**

If it has been determined that a proposal involves an action in or affecting a floodplain or wetland and that the action could result in adverse impacts, analyze and evaluate all practical alternatives. Give special emphasis to the exploration of alternatives that would relocate the proposed action outside of the area, as opposed to simply minimizing the adverse impacts of the proposed action. Consider alternatives to non-structural proposals in or affecting the area. Follow the procedures for analysis, evaluation, and documentation specified in FSH 1909.15, Environmental Policy and Procedures Handbook.

### **2527.31 - Evaluation Factors**

1. Evaluate three types of floodplain impacts:
  - a. Positive and negative,
  - b. Concentrated and dispersed, and
  - c. Short- and long-term.

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Assess them in terms of the resource values associated with water, wildlife, aquatic organisms, heritage resources, agriculture, and vegetation.

2. Develop evaluations and decisions in the total land management planning context, considering the public interest in:

- a. Human health, safety, and welfare;
- b. Prevention of the loss of property values;
- c. Maintenance of natural systems;
- d. Economic efficiency; and
- e. Resource needs of Regions and localities.

Evaluate risk characteristics including depth, velocity, and rate of rise of floodwater; location in a floodway or coastal high hazard area; available warning and evacuation time; and special problems, such as flood-related erosion, subsidence, sink-holes, and combination of flood sources.

Follow the specific requirements of Executive orders 11988 and 11990 in preparing the planning criteria to guide the Regional and Forest planning process and management direction concerning floodplains and wetlands.

**2527.32 - Data Needs for Floodplain and Wetland Evaluation**

Establish the appropriate type, scope, and intensity of study and analysis for any particular area and proposed action through the land and resources management planning process.

**2527.33 - Provision for Minimizing Flood Damage**

Minimize adverse impacts to improvements within floodplains and wetlands. Avoid new construction or substantial improvement of a structure or facility in a floodway unless it is consistent with the criteria of the National Flood Insurance Program or any more stringent Federal, State, or local floodplain management standards, and unless one of the following conditions exists:

1. It is a functionally dependent use, such as a bridge or culvert.
2. It will facilitate an open space use.
3. It is designed to preserve, restore, or enhance the natural and beneficial resources and uses of the floodplain.



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### **2527.34 - Documentation of Analyses and Evaluations**

Prepare documentation of analyses and evaluations for inclusion in the NEPA document or for the planning record.

### **2527.4 - Restrictions**

When property in floodplains or Federally owned wetlands or portions of wetlands is proposed for lease, easement, right-of-way, or disposal to non-federal public or private parties:

1. Reference in the conveyance documents those uses that are restricted under identified Federal, State, or local floodplain or wetland regulations; and
2. Attach other appropriate restrictions, which have been identified in the environmental analysis, to the use of the properties by the grantee or purchaser and any successors.

Consult with the Office of the General Counsel on special situations where there may be prohibitions by law from withholding a property from conveyance and from attaching any use restrictions in a proposed conveyance of a tract of land or interest therein to non-federal, public, or private parties.

### **2527.5 - Posting of Past and Probable Flood Heights**

Enhance public awareness and knowledge of flood hazards by placing appropriate signs or other means of conspicuous delineation showing the highest past flood level and probable 100-year flood heights in identified flood hazard areas and in public use areas which have suffered flood damage. Place priority on those areas within the National Forest System where the probability of rapid rises of water level (flash floods) is greatest, where flood warning time is minimal, or where critical structures and facilities are involved.

## **2528 - EMERGENCY WATERSHED PROTECTION PROGRAMS**

The Natural Resources Conservation Service (NRCS) has been assigned overall administrative responsibility for this program. Responsibilities of Forest Service officials are in FSM 2528.04-2528.04e.

### **2528.01 - Authority**

The Federal law authorizing watershed rehabilitation following natural disasters is the Agricultural Credit Act of 1978 (FSM 2501.1), also known as the Emergency Conservation Program. Section 403 of this act specifically authorizes a program of assistance for emergency measures needed to safeguard lives and property following natural disasters.

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## **2528.02 - Objective**

To respond quickly and effectively to alleviate the effects of natural disasters and reduce the threat to life, public health, and property. For further direction, see FSM 3540.

## **2528.03 - Policy**

Request and use emergency flood prevention when the resources of regular programs are not sufficient to implement emergency measures following natural disasters.

## **2528.04 - Responsibility**

### **2528.04a - Chief**

The Chief has the responsibility for requesting funds from the Secretary of Agriculture for emergency watershed stabilization work.

### **2528.04b - Director, Cooperative Forestry Staff, Washington Office**

The Director, Cooperative Forestry Staff, Washington Office, has the responsibility to:

1. Coordinate Forest Service participation in Emergency Flood Prevention (EFP) programs with the Natural Resources Conservation Service.
2. Review and approve Regional requests for emergency flood prevention funds under section 403 of the Agricultural Credit Act of 1978.

### **2528.04c - Director, Watershed, Fish, Wildlife, Air, and Rare Plants Management Staff, Washington Office**

The Director, Watershed, Fish, Wildlife, Air, and Rare Plants Management Staff, Washington Office, has the responsibility to:

1. Ensure that emergency flood prevention needs on National Forest System lands are properly identified, and the funds requested are properly used.
2. Coordinate National Forest System activities with the Director, Cooperative Forestry Staff, Washington Office.

### **2528.04d - Regional Foresters**

Regional Foresters have the responsibility to review and approve project plans and request emergency funds for rehabilitation following major fires, floods, or other disasters.

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### **2528.04e - Forest Supervisors**

Forest Supervisors have the responsibility to conduct surveys, request funds, and install treatments necessary for emergency watershed rehabilitation to prevent onsite and downstream damage following fires and other disasters.

## **2529 - NATURAL DISASTER AND FLOOD DAMAGE SURVEYS**

### **2529.02 - Objective**

To identify and evaluate damage-producing events causing threat to life or property, site deterioration, or water pollution; and to plan appropriate corrective actions on the affected watersheds.

### **2529.04 - Responsibility**

#### **2529.04a - Regional Foresters**

Regional Foresters have the responsibility to:

1. Coordinate flood and other natural disaster surveys with resource planning among National Forests, and with similar efforts of other Federal, State, and area wide agencies.
2. Arrange for obtaining quantitative precipitation forecasts and assisting National Forests with timely flood or high water warnings to expedite damage control activities.

#### **2529.04b - Forest Supervisors**

Forest Supervisors have the responsibility to:

1. Investigate all significant disasters promptly, appraise their impacts upon goals and targets, and recommend program adjustments for consideration by the Regional Forester.
2. Analyze environmental impacts.
3. Ensure Forest participation in State and local early flood warning systems.

### **2529.1 - Reporting Requirements**

Because of the variety of conditions and circumstances involved, it is difficult to place time limits for the submission of preliminary, interim, and final reports. The following general procedure should be used as a guideline:

1. All floods or other disasters serious enough to attract public attention and all occurrences of high water that indicate significantly impaired watershed conditions (whether they attract public attention or not), should be reported by any available method to the next higher line officer within 24 hours after the occurrence or discovery.

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2. Verbal reports of such natural disasters should be confirmed by a written memorandum within 3 business days after the occurrence or discovery.
3. Inspections should begin immediately and final reports should be sent to the Regional Forester within 30 days after the occurrence or discovery.
4. The Regional Forester shall make final decisions on requests for emergency funds within 40 days after the occurrence or discovery, or sooner if requested by the Washington Office.

### **2529.2 - Documentation of Natural Disasters**

Documentation of natural disasters and flood damage surveys must include:

1. Date of occurrence.
2. Brief description of disaster.
3. Tabulation of damages to improvements and resources by functional areas.
4. Summary of repairs implemented during the emergency phase of the disaster.
5. Recommendation for corrective action. Identify the type of work needed and possible sources of funding. Consider reprogramming regular funds as well as obtaining funding from outside sources, such as NRCS, Section 403 Emergency Watershed Protection funds for protecting life and property, and Highway Trust Fund (ERFO) funds for repairing roads and trails. Rank corrective measures and dollars needed using the following priority classes:
  - a. Extreme - measures needed to reduce immediate threat to life and property, such as protecting existing municipal watershed water supplies, roads, irrigation systems, and campgrounds.
  - b. High - measures that are needed to meet Forest Service management objectives or to address situations that would pose a threat to life and property during the next major runoff period, such as removal of debris jams and repair of roads essential access.
  - c. Moderate - repairs needed to maintain resource base, such as fish habitat improvement, repair and resurfacing of roads, and streambank stabilization.
  - d. Low - damages that are not cost-effective to repair such as large flowing landslides and streambank stabilization where there are no downstream values to protect.